Rule 21 Working Group Meeting

March 28, 2002

California Energy Commission

1516 9th Street, Sacramento, CA

Meeting Agenda

Combined Group Discussion 9:30 am to 10:30 am

- Introductions & Next Meeting Location – April 29 ABB, Carlsbad
- Utility DG Activity Sheets --
- Status of Advice Letter Filings - Rule 21 refinement, Contract Proposals – SCE filed yesterday; agreements not yet filed; PG&E will file R21 within 1 week...agreements will take longer; SDG&E April 8th R21 filing...agreements will be some time later in April. PUC will begin R21 right away; Agreements will be 20-40 days.
- Certification Update – Plug Power (include Chuck & Jeff's comments)
  (Chuck W presented "Plug Power Review Status—attached to these minutes) Xantrex inverter update – Nov 16 UL posted an alert that specific Xantrex SW inverters did not meet retest agreements; Simon C. saw the alert asked what PG&E should take, within this workgroup. Group held a call, Sandia did 2 rounds of testing—Xantrex did ; Endecon did analysis of Xantrex aggregation. Group consensus was that Xantrex concerns had been assessed, the risk is considered tolerable. The inverters "can continue to operate interconnected to the utility distribution system of PG&E, SCE, and SDG&E". (Quote from a draft from the techical workgroup. The workgroup will be circulating an updated draft shortly.) For inverters prior to Dec 11, 2001, these can stay in place; after Dec 11, 2001, inverters must meet all UL requirements.
- Supplemental Review Discussion Timeframe

Non-Technical Breakout (Rest of the Day with a Lunch Break)

- CPUC Decision 02-03-057 – Interconnection fee for NEM systems >10kW (deferred to the afternoon) Application review costs, Interconnection study costs, Distribution system modifications, Interconnection facility. PG&E - <10kW + E-NET has been collecting overall costs – job income system as if they were going to bill--tracking hours + equipment costs.

Suggested matrix:

	App review	IC study cost	Dist sys Mod	IC Facility costs
<10kW NEM				
10kW-1MW NEW				
=<1MW Rule 21				
>1MW Rule 21				

Suggestion to split app review into initial and supplemental. A few of SCE's Capstone applications have qualified for Simplified Interconnection.

June 1, 2002 – prepared to begin tracking; apps rec'd June 1 & later
January 1, 2003 – report
May 30, 2003 – stop reporting

Utilities must file advice letters to set up these accounting systems (for 02-03-057). Goal to file: June 1, 2002. To be discussed at next meeting.

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- Tariff matrix – Mike Mazur

Mike M. handed out the matrix. It will be distributed to the workgroup. Jerry J. handed out a Standby/Rule 21 Applicability Changes page that is approved by PG&E. Mike M. will incorporate the Pge work into the matrix. Mike M is waiting for input from SCE and SDG&E.

- Development and Review of Equipment Certification Language (no discussion)

Technical Breakout (Rest of the Day with a Lunch Break)

- Supplemental Review Discussion
  - · Supplemental Review suggestions for Export
    - o can we modify the IRP to accommodate some export?
    - o Input to the Supplemental Review Guide
      - a) Easy - system accepted as is or minor changes defined
      - b) Difficult - what is relevant for a system impact study

  - · Supplemental Review suggestions for systems exceeding the 15% line segment (Screen 4)
    - o Potential modifications to IRP
    - o Input to the Supplemental Review Guide
      - a) Easy - system accepted as is or minor changes defined
      - b) Difficult - what is relevant for a system impact study

  - · Supplemental Review suggestions for non-certified equipment (Screen 3)
    - o Potential modifications to IRP
    - o Input to the Supplemental Review Guide
      - a) Easy - system accepted as is or minor changes defined
      - b) Difficult - what is relevant for a system impact study

  - · Supplemental Review suggestions for systems exceeding the SCCR requirements (Screen 7)
    - o Potential modifications to IRP
    - o Input to the Supplemental Review Guide
      - a) Easy - system accepted as is or minor changes defined
      - b) Difficult - what is relevant for a system impact study

General

The Technical Committee met as part of the regular Rule 21 Workgroup meeting. Prior splitting into technical and non-technical sessions, an update on the status of the Supplemental Review process elicited a comment about the need to achieve some results fairly quickly. Currently, there is no basis for consistency (between utilities) when an application goes into Supplemental Review and each of the IOUs falls back on its previous Rule 21 and utility interconnection requirements to address supplemental review.

To that end, the technical committee discussed ways to accelerate the Supplemental Review Guidelines development process. The method generally preferred was to assign leads to the four topics that had previously been identified as highest priority and to address those topics in parallel via individual and subgroup writing assignments, e-mail exchanges, and regular meetings. The topics and leads are listed below:

Supplemental Review Topic	Lead Responsibility
1) Export (Screen 2)	Chuck Whitaker
2) 15% line segment (Screen 4)	Bill Cook
3) Non-certified Equipment (Screen 3)	Mohammad Vaziri
4) SCCR requirements (Screen 7)	Bob Baldwin/ Ed Grebel

Each of the topic leads will be sending out e-mails inviting anyone interested in contributing to one or more of these topics to join the subgroup. We anticipate that many people will want to join all four subgroups.

Starting with the Significance section for that Screen, each subgroup will develop a list of issues, specific to that topic, which need to be addressed.

Export Screen

A potential change to the initial review process (based on the group's discussion of the impact on voltage of exporting DR) was presented at the previous Workgroup meeting . The wording of the added fifth option, which is intended to allow some exporting systems to meet simplified interconnection requirements, was reviewed. This option was revised as follows. These changes were made to reflect the desire to further review the applications of systems that wish to utilize transfer trip or other fault detection techniques to address the potential for islanding. Thus, the option is limited to certified non-islanding systems, and was renamed to reflect this status.

Option 5: (Certified non-islanding Low level export)

To allow for low level export, while insuring that the aggregate output of Generating Facilities on a particular line section has minimal impact on voltage, the aggregate full export current capabilities of those Generating Facilities must be no more than 10% of the EC's Short Circuit Duty at the PCC. Full export capability is defined as either the Generating Facility rated output current (at nominal voltage) or the setting on an export-limiting function (i.e. reverse power relay) if such a function is used. To utilize this Option, the Generating Facility must be provided with Protective Functions that: (1) Incorporate certified Non-Islanding control functions.; or (2) detect Distribution System faults, both line-to-line and line-to-ground, and promptly cease to energize the Distribution System in the event of a fault.

The group went on to discuss how voltage regulation equipment might be impacted by exporting DR (due to reduced or reversed current flow through the regulator/compensator), beyond the voltage rise due to current injection dealt with in the Option 5 requirement. The implicit assumption is that the 15% line segment screen would provide an adequate threshold for

looking more closely at this issue, but this also implies that level of export must be considered when the 15% line segment screen is not met.

One other issue, it was pointed out in an e-mail discussion that a line segment short circuit duty is often, roughly, 10 times the normal full load capacity of the circuit. That means the screen would often allow exporting DR up to nearly the line section capacity. Jim Skeen of SMUD offered to do some modeling to evaluate if DR less than or equal to 10% of SCD would lead to any voltage problems.

Follow up
By the next WG meeting at the end of April, we hope to have the following:

- Supplemental Review Topic Subgroup rosters
- Outline for each topic
- Initial Writing assignments
- Draft text for review